

Lesson 2



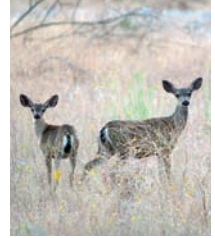
Doe and fawn

Traits for Survival

In this lesson, students expand their understanding of inherited traits focusing on characteristics that are important to an organism's survival. A return to *Adapted to Woodlands* focuses on the characteristics of mule deer (adults and young.) Students match this information with a chart of inherited traits created in Lesson 1 to focus on survival traits that mule deer inherit from their parents.

Learning Objective

Recognize that some of these characteristics are essential to the survival of the organisms.



spring the cycle will begin again and many of their survival traits will be passed on to the next generation.

For example, only during the first month of life does a fawn have white spots. In addition, doe mothers lick off their young's urine and droppings to minimize the characteristic deer scent contained in waste.

Fawns hide from predators whenever their mothers leave. Once fawns are strong enough to run, leap, and kick to defend themselves from predators, they start to exhibit these adult behavioral traits. As yearlings, survival traits begin to differ between adult does and bucks. Bucks develop antlers, which enable them to fight off predators and contend with other bucks during the mating season.

Mule deer, too, inherit an acute sense of smell. Their large ears (resembling the mules for which they are named) move independently. Their keen sense of hearing provides early warning of approaching predators. Their large eyes detect slight movement, even in the dim light of the forest or dusk. Sharp hooves give these deer the ability to kick predators that get too close.

Background

Each successful species passes down traits that allow individuals to survive from generation to generation. A generation is a group of genetically related organisms that constitute a single step in the line of descent. It is the average period between the birth of parents and the birth of their offspring. In humans, an average generation is considered about 30 years. Among plants and animals, generations can vary from minutes to decades.

The young of many species exhibit traits that are different from those of their parents. These traits may improve the likelihood that they will avoid predation and survive to adulthood. When they become adults they will display the traits of their parents. When adults mate and produce off-

Using this information, students participate in a class discussion and work with the teacher to complete a Venn diagram differentiating characteristics of adults and fawns. This process is used to aid students in identifying inherited traits that are important to mule deer survival. Once students have built an understanding of survival traits, they discuss the Key Vocabulary word—"generations." This approach will help students understand that parents, grandparents and past generations pass essential traits onto their young. It will also prepare them for later lessons in which they learn how inherited characteristics are influenced by the environment and can be essential to a species' survival through multiple generations.



Mule deer with antlers

Key Vocabulary

Fawn: The name of certain baby animals such as deer.

Generation: The average time between the birth of parents and the birth of their offspring.

Inherit: To receive from one's parents or ancestors.

Inherited trait: A trait that is passed down from parent to offspring.

Survival: Remaining alive.

Toolbox



Summary of Activities

Students use charted information and photographs to learn about traits that are important to mule deer survival. Class discussions focus on traits of young and adult mule deer; and, students create a Venn diagram that identifies survival traits. They use this information to answer questions about survival traits.



Instructional Support

See Unit Resources, page 24

Prerequisite Knowledge



Students should know about:

- animal life cycles, including reproduction; animals produce offspring that are like themselves.

Students should be able to:

- work with Venn diagrams.

Advanced Preparation



Gather Adapted to Woodlands:

- From Lesson 1

Gather and prepare Activity Masters.

Gather and prepare Visual Aids:

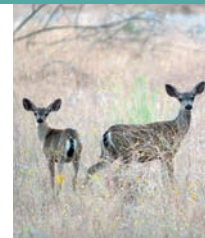
- Prepare transparencies.

Gather Inherited Traits chart:

- From Lesson 1

Prepare a Venn diagram labeled Mule Deer Survival:

- On the board or chart paper, make a Venn diagram like the sample provided in Step 1 of the procedures. Do not include the sample answers on the Venn diagram.



Materials Needed



A-V equipment:

- Overhead or LCD projector, screen

Class supplies:

- Chart paper (optional), marker, masking tape

Visual Aids



Transparencies:

- Mule Deer Buck, Visual Aid #3

Duration



Preparation Time

15 min.

Instructional Time

45 min.



Safety Notes

None

Activity Masters in the Supporting Materials (SM)

Mule Deer Survival Traits

SM, Pages 11–12
One per student

Procedures

Vocabulary Development

Use the **Unit Dictionary** and the **Vocabulary Word Wall Cards** to introduce new words to students as appropriate. These documents are provided separately.

Step 1

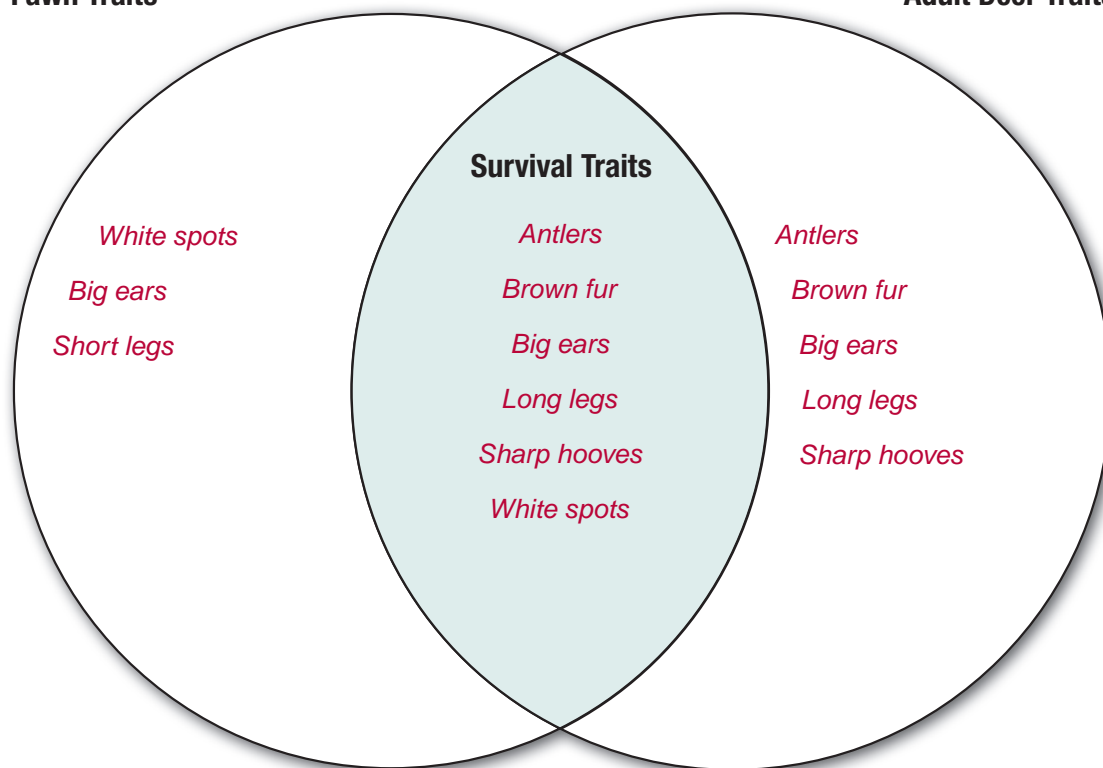
Post the Venn diagram of **Mule Deer Survival Traits** on the board. Distribute a copy of the **Mule Deer Survival Traits** (Lesson 2 Activity Master) to each student. Explain that as you fill in the chart on the board, they will copy the words into the same places on their copy of **Mule Deer Survival Traits**.

Tape the “Inherited Traits” chart from Lesson 1 next to the Venn diagram. Tell students that fawns have two parents, a mother (called a doe) and a father (called a buck). Ask them to look at the chart and identify traits that should be added to the “Adult Deer Traits” circle. Add student’s examples. (*Big ears, big eyes, long legs, sharp hooves and brown fur*)

Mule Deer Survival Traits

Fawn Traits

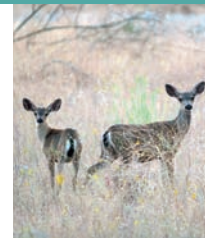
Adult Deer Traits



Step 2

Project the transparency of the **Mule Deer Buck** (Visual Aid #3). Explain that mule deer bucks are males and begin to grow antlers when they are one year old. Talk about how antlers help bucks fight off predators such as coyotes, wolves, and dogs in order to survive. Tell students that bucks also use their antlers to fight other bucks in order to find a mate and reproduce.

Add “antlers” to inherited survival traits to the non-overlapping part of the “Adult Deer Traits” circle.



Step 3

Distribute *Adapted to Woodlands* and have students turn to page 6 and look again at the photograph of a mule deer doe with her fawn. Ask students, “What trait does the fawn show that the mother does not?” (*White spots, short legs*) List the trait in the non-overlapping part of the “Fawn Traits” circle. Ask what other characteristics they should add to the fawn circle? (*Short legs, big eyes*) Record this information in the non-overlapping part of the “Fawn Traits” circle if it is not yet there.

Step 4

Point to the word “survival” and explain that “survival” means remaining alive. Write the words “Survival Traits” at the top of the overlapping area between the circles. Have students copy the words onto their Venn diagram.

Have students look at the “Adult Deer Traits” side of the diagram and ask, “Which of the traits listed help the adult mule deer survive? (*Note: students should name all the traits on the adult side.*) Ask the same question for the fawns and record the answers on the “Fawn Traits” side of the circle. Have students copy the answers onto their Venn diagrams on **Mule Deer Survival Traits**.

Ask the students, “What survival traits do the adults and fawns have in common?” Write these answers in the area of the overlapping circles. Have the students write the answers on their diagrams.

Step 5

Point to the Key Vocabulary word “generation.” Review the definition, the average time between the birth of parents and the birth of their offspring. Point to the photographs of the mule deer doe and fawn on page 6 in *Adapted to Woodlands* and explain that the mother is from one generation and her baby is from the next. Tell students that they are one generation, their parents are the generation before them, and their grandparents are the generation before that.

Ask students to think of their family. Ask them, “Between you and your parents, which is the younger generation? (*Ours, the students*)

Step 6

Review the “Traits Mule Deer Need to Survive” short answer questions at the bottom of **Mule Deer Survival Traits**. Have students use their Venn diagrams to help them answer the questions. Collect for assessment.

Step 7

When students are finished, ask the students to state a clarifying question based on the prompt, “What Else do You Want to Know?” Tell them that their questions should start with, “Why,” “How,” or “What if” and should be directed at something they still want to know about what they learned in this lesson.

Lesson Assessment

Description

Lesson 2 teaches students to recognize that some inherited traits are essential to the survival of an organism. As students complete the **Mule Deer Survival Traits** (Lesson 2 Activity Master) they demonstrate their understanding of how the traits that mule deer inherit from their parents are important to their survival.

Suggested Scoring

The Venn diagram on **Mule Deer Survival Traits** is not graded.

Use the Answer Key provided on pages 45–46 to score the “Traits Mule Deer Need to Survive” section of the **Mule Deer Survival Traits**. Each correct answer is valued at 5 points. The total score is 25 points.

Answer Key and Sample Answers

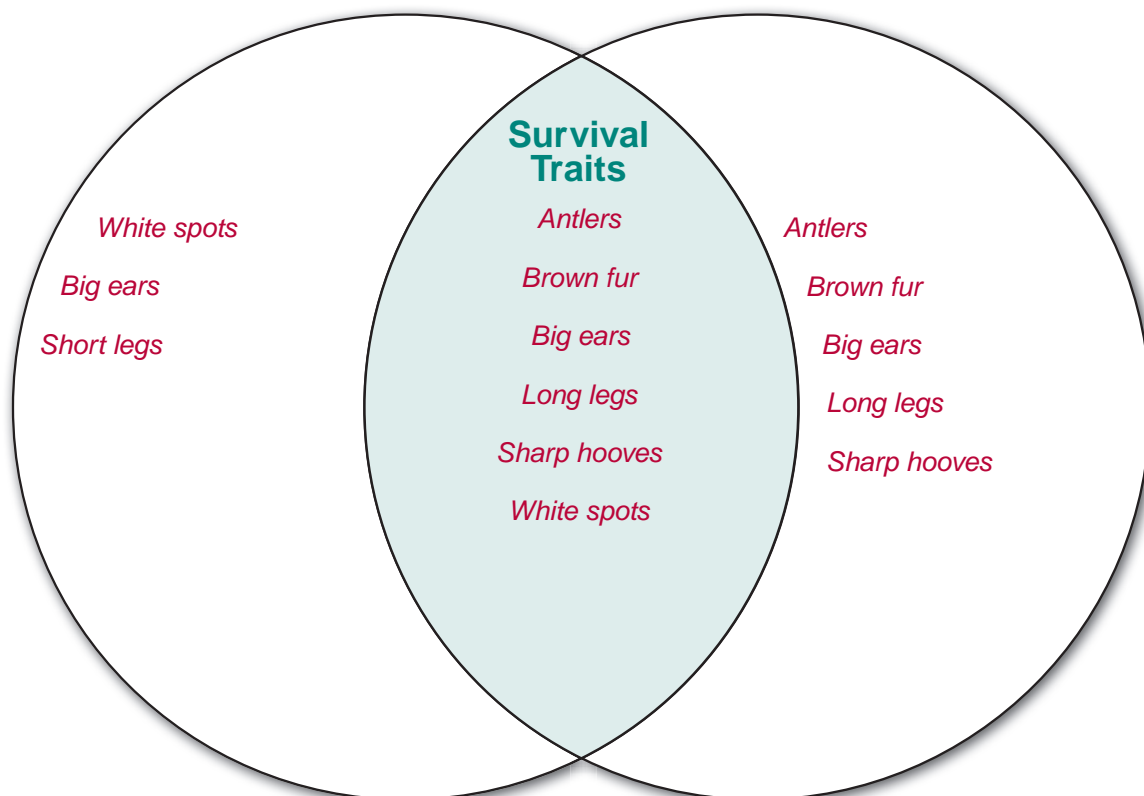
Mule Deer Survival Traits

Lesson 2 Activity Master | page 1 of 2

Name: _____

Fawn Traits

Adult Deer Traits



Traits Mule Deer Need to Survive

How do a fawn's white spots help it to survive?

Helps them to blend in

How do sharp hooves help adult mule deer to survive?

Kick and fight with predators

Mule Deer Survival Traits

Lesson 2 Activity Master | page 2 of 2

Name: _____

Why are mule deer's long legs important?

They can run fast and jump over fences to escape predators

How does brown fur help an adult mule deer?

Helps them blend in with surroundings and hide from predators

Why are big eyes important to mule deer's survival?

Helps them see danger and run away or hide

3

Mule Deer Buck

Visual Aid — Transparency

Mule Deer Buck